Bangalore Electricity Supply Company Limited

(Wholly owned by Government of Karnataka Undertaking)

TECHNICAL SPECIFICATION FOR STRANDED G.I. WIRE (7/10SWG Guy Wire)

1.0 SCOPE:

This specification provides for manufacture, testing before dispatch, supply and delivery of Galvanised Stranded Steel Wire.

2.0 STANDARDS:

The G.I. Stranded wire shall comply with the following India Standards with their latest amendments if any.

a) I.S.-2141/1979 and the relevant standards indicated there.

b) Hot dip galvanized coatings for stranded wire shall conform to IS-4826/1979 and revisions thereof.

PART-'A'-STRANDED WIRE

3.0 MATERIAL:

3.1 The wire shall be drawn from steel made by the open-hearth basic oxygen or electric furnace process and of such quality that when drawn to the size of wire specified and coated with zinc, the finished strand and the individual wires shall be of uniform quality and have the appropriate properties and characteristics as specified in this specification. The wires shall not contain sulphur and phosphorus exceeding 0.060% each.

3.2 The wire shall be coated with zinc of grade – Zn-89 as per IS: 209/1966.

3.3 The wires shall be circular and shall be free from scale, irregularities, imperfections, split surface flaws, rough, jagged and imperfect edges. The zinc coating shall be smooth, even and bright.

3.4 Joints shall be permitted in the individual wires during stranding, but these stranding joints shall not be less than 15 Mrs. Apart in the finished strands.

4.0 CONSTRUCTION

4.1 The wires shall be of grade-4 having minimum tensile strength of 70 kg per sq.mm.

4.2 The constructional details shall be as specified in Table-'A' below. The galvanized stay strand shall be of 7 (seven) wires and the wire shall be so stranded together that when an evenly distributed pull is applied at the ends of the completed wire, each strand will take an equal share of the pull.

TABLE – 'A': SINGLE WIRE

No. of Wires	Wire Dia Min.	Tolerance %	Tolerance on Galvanized wire Dia	Min. Elongation (%)	Min breaking load before Stranding for single wire (KN)	Length of Lay	Min. breaking load of strand (KN)
7	3.15	±2.5% with a minimum of 0.025 mm.	+060	10	5.46	12 to 18 times the strand diameter	34.0

5.0 SAMPLING CRITERIA:

Sampling criteria and the tests shall be in accordance with IS-2141-1979.

Sl. No.	LOT size	No. of Samples
1	Upto 25	3
2	26 to 50	5
3	51 to 150	8
4	150 to 300	10
5	300 above	13

6.0 TESTS:

6.1 TESTS ON WIRES BEFORE MANUFACTURE:

1) Ductility test in accordance with IS-1755.
2) Measurement of diameter.

6.2 ACCEPTANCE TEST ON COMPLETE STRAND

1) Tensile and elongation tests as per IS-2141.
2) Chemical analysis of sample from each lot.
3) Coating test.

The uniformity of zinc coating shall be tested by the method specified in IS-2633/1964. The wire shall withstand the No. of dips as specified in IS-4826-1979 as indicated below in Table-'B':

TABLE-'B': WEIGHT OF COATING AND NUMBER OF DIPS-HEAVILY COATED WIRE:

Nominal diameter of galvanized wire in mm	HARD		
	Weight of coating gms/ Sq.mtr.	No. of dips	
		1 Min.	½ Min.
3.15	**250**	**3**	**-**

Hard galvanized after drawing without annealing.

PART-'B'-GENERAL

7.0 **WEIGHT OF COIL:**

The stranded wires shall be supplied in 70-100 Kg. coils.

8.0 **MARKING**:

Each coil shall be provided with a metallic label fixed firmly on the inner part of the coil beating the following information:

i) Manufacturer's name or Trade mark,
ii) Number and Coil No.
iii) Size Length Mass
iv) ISI-Certification mark, if any,
v) Identification Mark-BESCOM P.O. No.

The above shall be legibly stamped upon a metallic tape securely attached to the coil.

8.1 **PACKING**:

Each coil shall be wrapped in hessian and packed in a manner acceptable to the Purchaser. The packing should have the mark BESCOM and Purchase order No.

8.2 **GUARANTEED TECHNICAL PARTICULARS**:

The tenderers shall furnish the Guaranteed Technical Particulars as per Appendix-I and submit the same with the tender, failing which the offer will be rejected.

9.0 **INSPECTION**:

The Supplier shall afford necessary facilities to the representative of the BESCOM to inspect his works during the process of manufactured of the material. All tests as per relevant ISS are to be conducted in the presence of Board's representative. The Supplier must intimate the programme of test atleast 15 days in advance to enable the Board to depute their representative for witnessing the tests. Type tests shall also be conducted on selected samples if found necessary, before the Board's representative.

9.1 **INSPECTION RECEIPT**:

The Supplies will be inspected on receipt. If the materials do not conform to the relevant ISS and to these specifications, the supplies will be rejected. The rejected materials shall be collected by the supplier at his own cost. The Board may accept replacement only if it conforms to these specifications.

General Manager (El.)
Quality Standards and Safety,
BESCOM

Guaranteed Technical Particulars for G.I. Wire Stranded 7/3.15mm (Guy Wire)

STRANDED WIRE:

1	Maker's Name & Address	:	
2	Single wire before stranding		
	a) Diameter in mm.	:	
	b) Tolerance in diameter in mm.	:	
	c) Minimum elongation in 100 mm ..... in mm	:	
	d) Minimum breaking load in Kgf.	:	
3	Stay-Stranded Wire	:	
	a) Length of lay in mm.	:	
	Minimum	:	
	Maximum	:	
	b) Minimum breaking load in Kgf.	:	
4	Tensile strength of wire in Kgf./mm²	:	
5	Overall dia. Of stranded wire	:	
6	Sectional area of stranded wire in mm²	:	
7	Electrical resistance in ohms. Per KM at 20 Deg. C	:	
8	Coating test:	:	
	a) Type of Zinc coating, whether heavy or Light	:	
	b) Weight of coating in gms./ mm²	:	
	c) No. of dips 1 min.	:	
	½ min.	:	
9	Tensile test	:	
	Minimum tensile strength of 100 mm. gauge length of wire	:	
10	Ductility Test	:	
	Condition of wire when wrapped 8 times round its own dia and on being sub-sequently straightened	:	

11	a) Length of wire in each coil in meters	:	
	b) Tolerance (%)	:	
12	a) Weight of each coil	:	
	b) Tolerance (%)	:	
	c) Weight of wire in Kg./Km.	:	
	Standard according to which stay strand is manufactured and tested	:	
13	Details of packing	:	

Firm seal & Signature